What is claimed is:

1. A data storage device comprising an approximate matching and pre-fetch processor connected to a storage medium.

2. The data storage device of claim 1 wherein the approximate matching and pre-fetch processor includes an approximate matching unit connected to the storage medium and a logic device connected to the approximate matching unit.

3. The data storage device of claim 2 wherein said logic device comprises a data processor.

4. The data storage device of claim 3 wherein said logic device comprises a digital data processor.

5. The data storage device of claim 4 wherein said digital data processor comprises a microprocessor programmed to accept search inquiries from another digital data processor, interpret said search inquiries and translate them for determining an associated key therewith, and transmit a search inquiry and the determined key to the approximate matching unit.

6. The data storage device of claim 4 wherein said digital data processor comprises a programmable logic device programmed to accept search inquiries from another digital data processor, interpret said search inquiries and translate them for determining an associated key therewith, and transmit a search inquiry and the determined key to the approximate matching unit.

7. The data storage device of claim 5 wherein the approximate matching unit comprises a comparator for comparing the determined key with data read from the storage medium and determining a match therebetween.

8. The data storage device of claim 6 wherein the approximate matching unit comprises a comparator for comparing the determined key with data read from the storage medium and determining a match therebetween.

9. A retrieval device for retrieving data from a mass storage medium including a matching circuit for comparing a determined key representative of the data sought to be retrieved with a data signal representative of a continuous stream of data read from said mass storage medium, said determined key being an analog signal representative of the data itself and the data signal also being an analog signal.

10. The retrieval device of claim 9 further comprising a memory connected to said retrieval device for storing said retrieved data for access by another processor.

11. The retrieval device of claim 9 wherein said retrieval device is directly coupled to said mass storage medium and interfacing said mass storage medium with a processor desiring said retrieved data for processing thereof.

12. A retrieval device for retrieving data from a mass storage medium, said retrieval device being directly coupled to said mass storage medium and interfacing said mass storage medium with a processor desiring said retrieved data for processing thereof, said retrieval device comprising a matching circuit for making a pattern comparison between a determined key representative of the data sought to be retrieved with a data signal representative of a continuous stream of data read from said mass storage medium.

13. The retrieval device of claim 12 further comprising a memory connected to said retrieval device for storing said retrieved data for access by said processor.

14. The retrieval device of claim 12 wherein said matching circuit is configured to match a digital key with a digital data signal.

15. The retrieval device of claim 14 further comprising a plurality of mass storage media coupled to said matching circuit.

16. The retrieval device of claim 12 wherein said matching circuit is configured to match an analog signal key with an analog data signal.

17. The retrieval device of claim 16 further comprising a plurality of mass storage media coupled to said matching circuit.

18. A retrieval device for retrieving data from a mass storage medium, said retrieval device being directly coupled to said mass storage medium and interfacing said mass storage medium with a computer network desiring said retrieved data for processing thereof,
5   said retrieval device comprising an approximate matching circuit for making a pattern comparison between a determined key representative of the data sought to be retrieved with a data signal representative of a continuous stream of data read from said mass storage medium.

19. The device of claim 18 further comprising a memory connected to said retrieval device for storing said retrieved data for access by said computer network.

20. A computer having a main processor, a working memory, a supplemental memory, and an approximate matching and pre-fetch processor, said pre-fetch processor being directly coupled to said supplemental memory and configured to match a determined key
5   representative of data sought to be retrieved from said supplemental memory with a data signal representative of a continuous stream of data read from said supplemental memory.

21. A computer having a main processor, a working memory, a supplemental memory, and a circuit coupled to said supplemental memory for pattern matching a key to a continuous stream of data read from said supplemental memory.

22. A network attached mass storage device (NASD), said NASD comprising a mass storage device coupled to an approximate matching and pre-fetch processor, said NASD having a network addressable input/output port for receiving data inquiries and responding
5   thereto.

23. A network attached mass storage device (NASD), said NASD comprising a mass storage device coupled to a circuit for pattern matching a key to a continuous stream of data read from said mass storage memory, and said NASD having a network addressable
5   input/output port for receiving data inquiries and responding thereto.

24. A method for retrieving data from a mass storage medium, said method comprising the steps of:

receiving a search command from a processor for said mass storage medium,

5   determining a key representative of the data desired to be retrieved from said mass storage medium,

making a pattern comparison between said key with a data signal representative of a continuous stream of data read from said mass storage medium, said key not being representative of any particular

10   data structure and not necessarily the same structure in which said data is stored in said mass storage device, and

determining which data matches said key.

25. The method of claim 24 wherein the step of determining which data matches the key consists of determining an approximate match between said data and said key.

26. The method of claim 24 further comprising the step of continuously correlating the key with the data signal in order to determine a match.

27. The method of claim 24 wherein the step of determining the key further comprises the steps of writing and reading data corresponding to said key on a storage medium.

28. The method of claim 24 wherein said key is an analog signal.

29. The method of claim 24 wherein said key is a digital signal.

30. The method of claim 24 wherein the step of determining the key further includes the step of digitizing the signal corresponding to the key.

31. An intelligent mass storage medium device, said device having a circuit for making a pattern comparison between a key and a signal representative of a continuous read of data from a data storage medium.

32. The device of claim 31 wherein said pattern comparison circuit comprises an approximate matching and pre-fetch processor coupled to an approximate matching unit.

33. The retrieval device of claim 9 further comprising a memory connected to said retrieval device for storing a digital representation of said retrieved data for access by another processor.

34. A retrieval device for retrieving data from a mass storage medium including a matching circuit for comparing a determined key representative of the data sought to be retrieved with a data signal representative of a continuous stream of data read from said mass
5   storage medium, said determined key being a digital representation of the data itself and the data signal also being digital.

35. The retrieval device of claim 34 further comprising a memory connected to said retrieval device for storing said retrieved data for access by another processor.

36. The retrieval device of claim 34 wherein said retrieval device is directly coupled to said mass storage medium and interfacing said mass storage medium with a processor desiring said retrieved data for processing thereof.

37. The data storage device of claim 1 wherein the approximate matching and pre-fetch processor includes an approximate matching unit, the storage medium includes at least one storage surface, a digital decoder in circuit with an output of said surface, and the
5   approximate matching unit is connected between said storage surface and the digital decoder.

38. The data storage device of claim 1 wherein the approximate matching and pre-fetch processor includes an approximate matching unit, the storage medium includes at least one storage surface, a digital decoder in circuit with an output of said surface, and the
5   approximate matching unit is connected to an output of the digital decoder.

39. The data storage device of claim 1 wherein the approximate matching and pre-fetch processor includes an approximate matching unit, the storage medium includes at least one storage surface, a digital decoder in circuit with an output of said surface, an error
5   correction circuit in circuit with the output of said digital

decoder, and the approximate matching unit is connected to an output of the error correction circuit.

40. The retrieval device of claim 12 wherein said matching circuit is configured to approximately match a digital key with a digital data signal.

41. The retrieval device of claim 12 wherein said matching circuit is configured to approximately match an analog signal key with an analog data signal.

42. A computer having a main processor, a working memory, a supplemental memory, and an approximate matching and pre-fetch processor, said pre-fetch processor being directly coupled to said supplemental memory and configured to approximately match a determined key representative of data sought to be retrieved from said supplemental memory with a data signal representative of a continuous stream of data read from said supplemental memory.